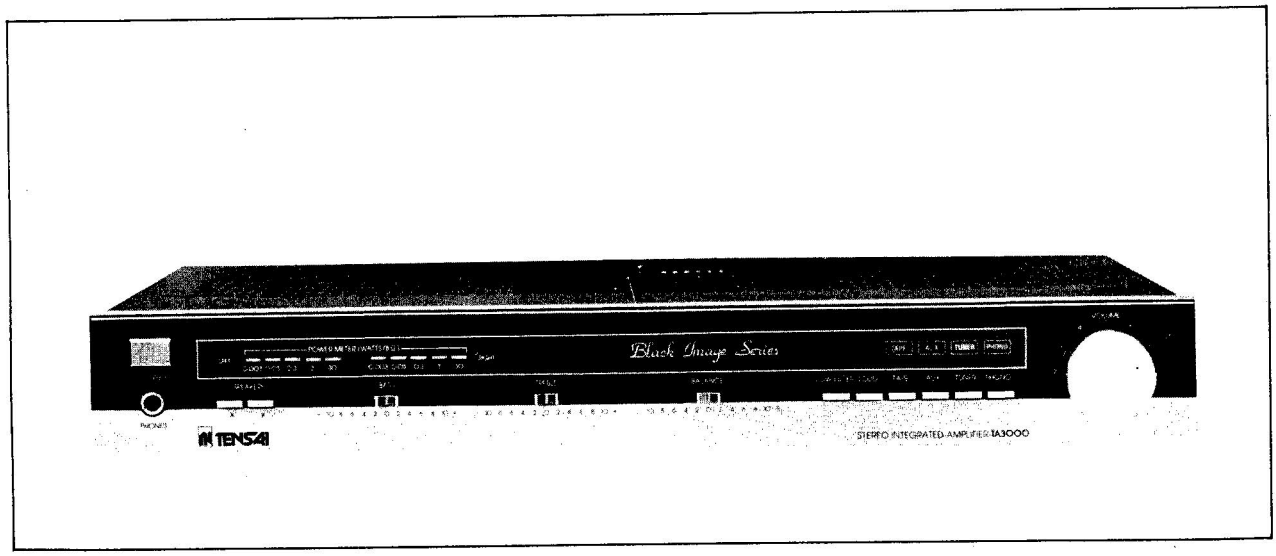
TA-3000
INTEGRATED AMPLIFIER

TENSAI
INTERNATIONAL



Service Manual

CONTENTS

SPECIFICATIONS 2
PARTS LIST 3, 4
TOP VIEW OF P.C. BOARDS 5
DISASSEMBLY 6, 7
PARTS LIST 7
PACKING 8
EXPLODED VIEW OF CABINET AND CHASSIS 9, 10
PARTS LIST ACCORDING TO EXPLODED VIEW 10
POINT TO POINT WIRING DIAGRAM 11, 12
SCHEMATIC DIAGRAM 13, 14
BLOCK DIAGRAM 15

SPECIFICATIONS

Output Power (both channels driven)
- at 8 ohms, 1KHz 2x30W
- at 4 ohms, 1KHz 2x35W

Harmonic Distortion 0.05%

Input Sensitivity / Impedance
- Phono ..... 2.5mV/47K ohms
- Tuner ..... 150mV/80K ohms
- Aux ..... 150mV/80K ohms
- Tape ..... 150mV/80K ohms

Output Level / Impedance
- Tape 150mV
- Headphones ..... 8 ohms—2K ohms
- Speakers ..... A, B, A+B, OFF/ 8 ohms or more

Frequency Response ..... 8Hz—50KHz

Tone Control
- Bass ..... ±10dB
- Treble ..... ±10dB

Loudness Contour ..... +10dB/100Hz +6dB/10KHz

Signal -to-Noise Ratio
- Phono 64dB
- Tuner, Aux, Tape 90dB

Power Consumption ..... 180W at rated power output, 12W at no signal

Dimension (WHD) 430x55x263mm

Weight 5.75Kg

NOTE: Specifications and design subject to change without notice for improvements.

PARTS LIST

Ref. No.	Parts No.	Description	Q'ty
MAIN PC BOARD K40417			
SEMICONDUCTORS			
IC301		IC STK-463ST	1
Q101L/R		Transistor MPS9633C	2
Q102L/R		Transistor 2SA970BL	2
D202L/R		Diode CDG24/MA150	2
D501, D502		Diode 1N5172(2A100V)	4
D503, D504			
D505, D506		Diode Zener WZ140	2
D507		Diode 1N4002(1A100V)	1
COILS			
L101L/R	PE-30184	Coil Inductor 20μH	2
L301L/R	PE-30152	Coil Inductor 0.5μH	2
RESISTORS			
R101L/R	60F154-¼J	Carbon 150K ¼W J	2
R102L/R	60F103-¼J	Carbon 10K ¼W J	2
R103L/R	60F683-¼J	Carbon 68K ¼W J	2
R104L/R	60F621-¼J	Carbon 620 ¼W J	2
R105L/R	60F473-¼J	Carbon 47K ¼W J	2
R106L/R	60F333-¼J	Carbon 33K ¼W J	2
R107L/R	60F824-¼J	Carbon 820K ¼W J	2
R108L/R	60F104-¼J	Carbon 100K ¼W J	2
R109L/R	60F182-¼J	Carbon 1.8K ¼W J	2
R110L/R	60F471-¼J	Carbon 470 ¼W J	2
R111L/R	60F332-¼J	Carbon 3.3K ¼W J	2
R112L/R	60F473-¼J	Carbon 47K ¼W J	2
R113L/R	60F102-¼J	Carbon 1K ¼W J	2
R114, R115	60F101-¼J	Carbon 100 ¼W J	2
R201L/R	60F682-¼J	Carbon 6.8K ¼W J	2
R219L/R	60F103-¼J	Carbon 10K ¼W J	2
R220L/R	60F272-¼J	Carbon 2.7K ¼W J	2
R221L/R	60F123-¼J	Carbon 12K ¼W J	2
R222L/R	60F105-¼J	Carbon 1M ¼W J	2
R223L/R	60F102-¼J	Carbon 1K ¼W J	12
R224L/R			
R225L/R			
R226L/R			
R227L/R			
R301L/R			
R302L/R	60F333-¼J	Carbon 33K ¼W J	2
R303L/R	60F471-¼J	Carbon 470 ¼W J	2
R304L/R	60F103-¼J	Carbon 10K ¼W J	2
R305L/R	60F332-¼J	Carbon 3.3K ¼W J	2
R306L/R	60M102-½J	Metal Oxide 1K ½W J	2
R307L/R	60M100-1J	Metal Oxide 10 1W J	4
R308L/R			
R501	60M561-1J	Metal Oxide 560 1W J	1
R502	60M681-½J	Metal Oxide 680 ½W J	1
R503	60F479-¼J	Carbon 3.3 ¼W J	1
R504	60F102-¼J	Carbon 1K ¼W J	1
R505	60M151-2J	Metal Oxide 150 2W J	1
R506	60F 560-¼J	Carbon 56 ¼WJ	1

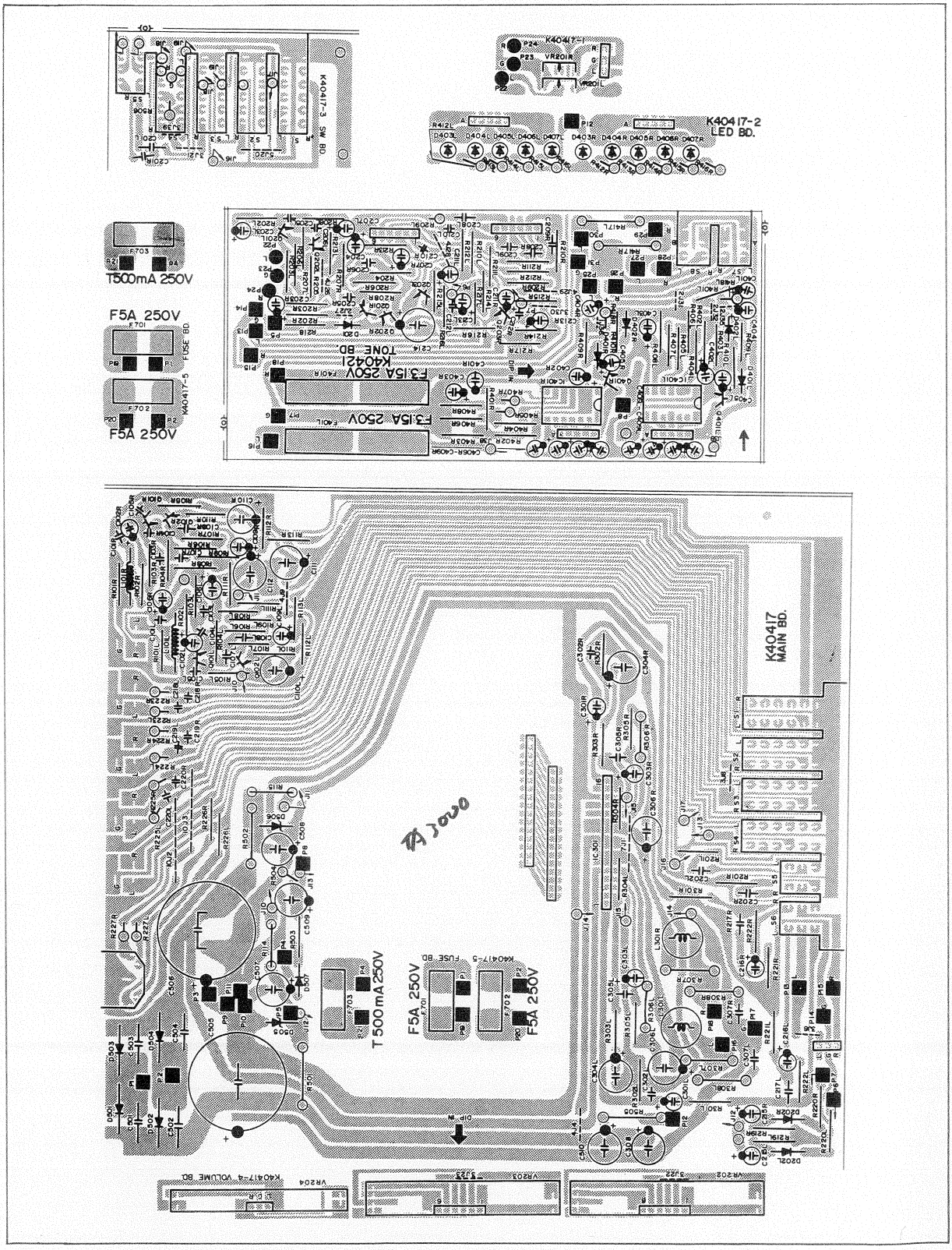
Ref. No.	Parts No.	Description	Q'ty
CAPACITORS			
C101L/R	50CE101-50J	Ceramic 100PF 50W V J	2
C102L/R	50AL479-16E	Elect 4.7μF 16WV E	2
C103L/R	50CE151-50J	Ceramic 150PF 50WV J	2
C104L/R	50CE101-50J	Ceramic 100PF 50WV J	2
C105L/R	50CE509-50J	Ceramic 5PF 50WV J	2
C106L/R	50AL101-6.3E	Elect 100μF 6.3WV E	2
C107L/R	50MY222-50J	Mylar 0.0022μF 50WV J	2
C108L/R	50MY822-50J	Mylar 0.0082μF 50WV J	2
C109L/R	50AL478-50E	Elect 0.47μF 50WV E	2
C110L/R	50AL221-6.3E	Elect 220μF 6.3WV E	2
C111, C112	50AL221-16E	Elect 220μF 16WV E	2
C113	50CE473-50J	Ceramic 0.047μF 50WV J	1
C201L/R	50CE471-50J	Ceramic 470PF 50WV J	2
C202L/R	50MY473-50J	Mylar 0.047μF 50WV J	2
C215L/R	50AL100-16E	Elect 10μF 16WV E	2
C216L/R	50AL228-16E	Elect 0.22μF 16WV E	2
C217L/R	50MY683-50J	Mylar 0.068μF 50WV J	2
C218L/R	50CE331-50J	Ceramic 330μF 50WV J	6
C219L/R			
C220L/R			
C301L/R	50AL109-50E	Elect 1μF 50WV E	2
C302L/R	50CE471-50J	Ceramic 470PF 50WV J	2
C303L/R	50AL109-50E	Elect 1μF 50WV E	2
C304L/R	50AL101-6.3E	Elect 100μF 6.3WV E	2
C305L/R	50CE509-50J	Ceramic 5PF 50WV J	2
C306L/R	50AL470-35E	Elect 47μF 35WV E	2
C307L/R	50MY473-50J	Mylar 0.047μF 50WV J	2
C308L/R	50AL101-35E	Mylar100μF 35WV E	2
C501, C502	50CE338-50T	Ceramic 0.33μF 150WV J	4
C503, C504			
C505, C506	50AL472-35E	Elect 4700μF 35WV E	2
C507, C508	50AL471-16E	Elect 470μF 16WV E	2
C509	50AL221-16E	Elect 220μF 16WV E	1
C510	50AL221-35E	Elect 220μF 35WV E	1
TONE PC BOARD K40421			
SEMICONDUCTORS			
Q201L/R		Transistor MPS9633C	2
Q202L/R		Transistor 2SA 970BL	2
Q203L/R		Transistor MPS 9633C	2
Q401L/R		Transistor 2SC 1815Y	2
D201 ·		Diode CDG24/MA150	5
D401L/R			
D402L/R			
IC401L/R		IC LB1407	2
RESISTORS			
R202L/R	60F102-¼J	Carbon 1K ¼W J	2
R203L/R	60F684-¼J	Carbon 680K ¼W J	2
R204	60F563-¼J	Carbon 56K ¼W J	1
R205	60F103-¼J	Crabon 10K ¼ W J	1
R206L/R	60F183-¼J	Carbon 18K ¼W J	2
R207L/R	60F271-¼J	Carbon 270 ¼W J	2

PARTS LIST

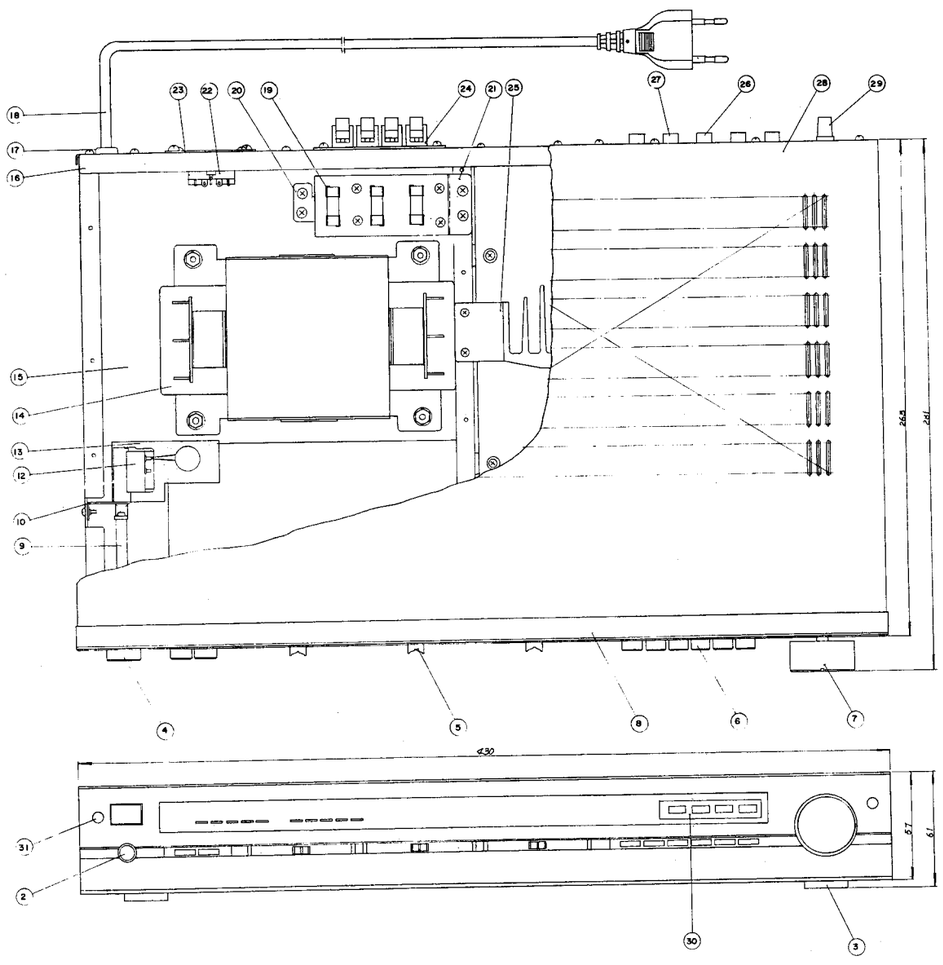
Ref. No.	Parts No.	Description	Q'ty
R208L/R	60F152-¼J	Carbon 1.5K ¼W J	2
R209L/R	60F103-¼J	Carbon 10K ¼W J	2
R210L/R	60F223-¼J	Carbon 22K ¼W J	2
R211L/R	60F103-¼J	Carbon 10K ¼W J	2
R212L/R	60F392-¼J	Carbon 3.9K ¼WJ	2
R213L/R	60F124-¼J	Carbon 120K ¼W J	4
R214L/R			
R215L/R	60F564-¼J	Carbon 560K ¼W J	2
R216L/R	60F472-¼J	Carbon 4.7K ¼W J	2
R217L/R	60F102-¼J	Carbon 1K ¼W J	2
R218	60F470-¼J	Carbon 47 ¼W J	1
R401L/R	60F822-¼J	Carbon 8.2K ¼W J	2
R402L/R	60F243-¼J	Carbon 24K ¼W J	2
R403L/R	60F561-¼J	Carbon 560 ¼W J	2
R404L/R	60F223-¼J	Carbon 22K ¼W J	2
R405L/R	60F103-¼J	Carbon 10K ¼W J	2
R406L/R	60F561-¼J	Carbon 560 ¼W J	2
R407L/R	60F823-¼J	Carbon 82K ¼W J	2
R408L/R	60F153-¼J	Carbon 15K ¼W J	2
R409L/R	60F564-¼J	Crabon 560K ¼W J	2
R410L/R	60F124-¼J	Carbon 120K ¼W J	2
R411L/R	60F105-¼J	Carbon 1M ¼W J	2
R417L/R	60F271-¼J	Carbon 270 ¼W J	2
R418L/R	60F104-¼J	Carbon 100K ¼W J	2
CAPACITORS			
C203L/R	50AL478-50E	Elect 0.47μF 50WV E	2
C204	50AL100-16E	Elect 10μF 16WV E	1
C205L/R	50CE101-50J	Ceramic 100PF 50WV J	4
C206L/R			
C207L/R	50AL479-50E	Elect 4.7μF 50WV E	2
C208L/R	50MY563-50J	Mylar 0.056μF 50WV J	4
C209L/R			
C210L/R	50PS821-50J	Poly 820PF 50WV J	2
C211L/R	50AL109-50E	Elect 1μF 50WV E	2
C212L/R	50CE470-50J	Ceramic 47PF 50WV J	2
C213L/R	50AL479-50E	Elect 4.7μF 50WV E	2
C214	50AL221-16E	Elect 220μF 16WV E	1
C401L/R	50AL109-50E	Elect 1μF 50WV E	4
C402L/R			
C403L/R	50AL479-16E	Elect 4.7μF 16WV E	2
C404L/R	50AL109-50E	Elect 1μF 50WV E	2
C405L/R	50AL478-16E	Elect 0.47μF 16WV E	2
C406L/R	50AL339-50E	Elect 3.3μF 50WV E	8
C407L/R			
C408L/R			
C409L/R			
FUSE			
FS401L/R	36BST3.15-250	Fuse(F3.15A) Speaker	2
LED PC BOARD K40417-2			
SEMICONDUCTORS			

Ref. No.	Parts No.	Description	Q'ty
D403L/R D404L/R D405L/R D406L/R D407L/R		LED SLB61RR3HL(Red)	10
RESISTORS			
R412L/R R413L/R R414L/R R415L/R	60F272-¼J	Carbon 2.7K ¼W J	8
R416L/R	60F102-¼J	Carbon 1K ¼W J	2
FUSE PC BOARD K40417-5			
FUSE			
FS701, FS702	36BST5.0-250	Fuse(F5A) Secondary	2
FS703	36BSB0.16-250	Fuse(T500mA) Lamp	1
CHASSIS			
CAPACITORS			
C309L/R C310L/R	50CE102-50J	Ceramic 0.001μF 50WV J	4
C601	DE7150F472MVA1	Ceramic 0.0047μF 400VAC	1
P. C BOARD			
	K40417	MAIN Board	1
	K40421	TONE Board	1
	K40417-1	VOLUME Board	1
	K40417-2	LED Board	1
	K40417-3	SW Board	1
	K40417-4	SLIDE VR Board	1
	K40417-5	FUSE Board	1

TOP VIEW OF P.C. BOARDS



DISASSEMBLY



PARTS LIST

NO.	PARTS NO.	DESCRIPTION	Q'TY
1	PC-63181	ACRYL VIEW	1
2	PD-95099	PHONE JACK	1
3	AE-71053	RUBBER FOOT	4
4	PE-72362	POWER KNOB	1
5	PE-72369	SLIDE KNOB	3
6	PE-72363	PUSH KNOB	8
7	PE-72368	VOLUME KNOB	1
8	PB-61141	FRONT PANEL	1
9	PE-72339-03	PUSH KNOB SHAFT	1
10	PE-68835	POWER SW B.K.T	1
11			2
12	PD-90303	POWER SW	1
13	PE-71289	POWER SW COVER	1
14	PD-35175	TRANSFORMER	1
15	PC-62528A	MAIN CHASSIS	1

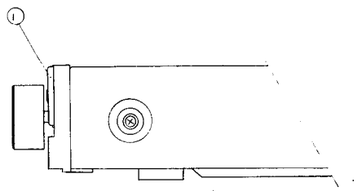
NO.	PARTS NO.	DESCRIPTION	Q'TY
16	PC-62526	BACK CHASSIS	1
17	PD-71008A	CORD STOPPER(POWER)	1
18	PE-67051-03	AC POWER CORD	1
19	PE-69124	FUSE CLIP (20㎜)	10
20	PE-68874	FUSE B'd B.K.T	1
21	PE-68444	PUSH SW B.K.T	1
22	PD-90376	VOLTAGE SELECTOR SW	1
23	PE-77124	VOLTAGE COVER PLATE	1
24	PE-76006	SPEAKER TERMINAL	1
25	PE-68873	HEAT SINK B.K.T	1
26	AE-95140	R.C.A JACK(6P)	1
27	AE-95138	R.C.A JACK(4P)	1
28	PC-74387-01	TOP CABINET	1
29	PE-70052	SYSTEM G.N.D	1
30	PE-63183-01	FILTER(FUNCTION)	1

PACKING

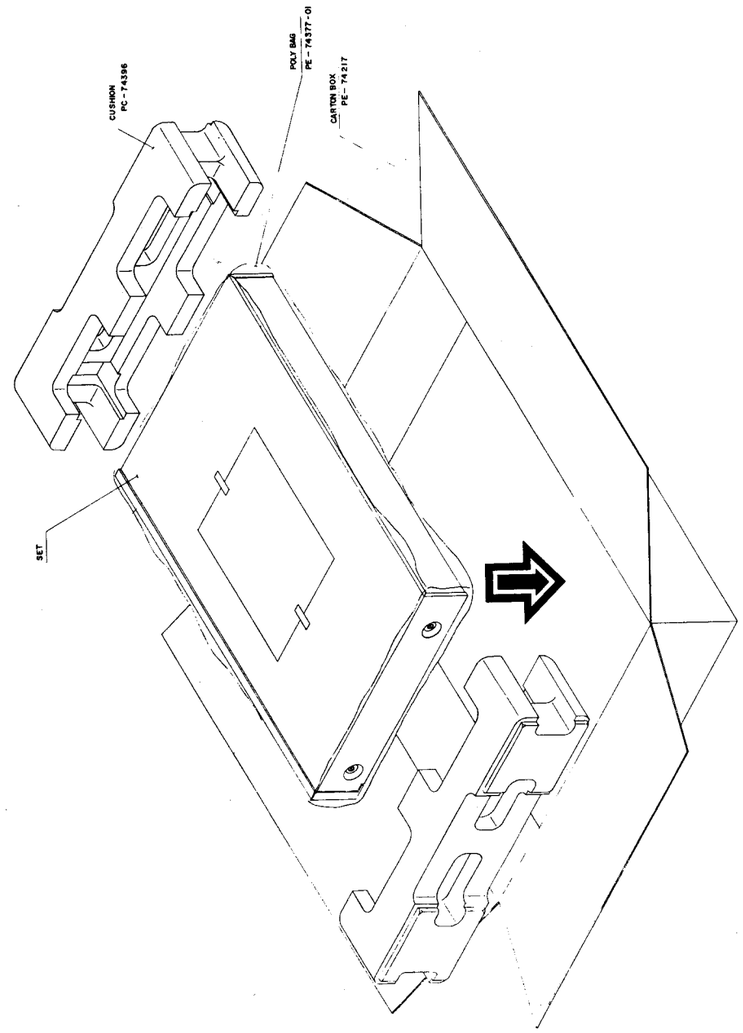
PARTS LIST

NO.	PARTS NO.	DESCRIPTION	Q'TY
1	PC-63181	ACRYL VIEW	1
2	PD-95099	PHONE JACK	1
3	AE-71053	RUBBER FOOT	4
4	PE-72362	POWER KNOB	1
5	PE-72369	SLIDE KNOB	3
6	PE-72363	PUSH KNOB	8
7	PE-72368	VOLUME KNOB	1
8	PB-61141	FRONT PANEL	1
9	PE-72339-03	PUSH KNOB SHAFT	1
10	PE-68835	POWER SW B.K.T	1
11			2
12	PD-90303	POWER SW	1
13	PE-71289	POWER SW COVER	1
14	PD-35175	TRANSFORMER	1
15	PC-62528A	MAIN CHASSIS	1

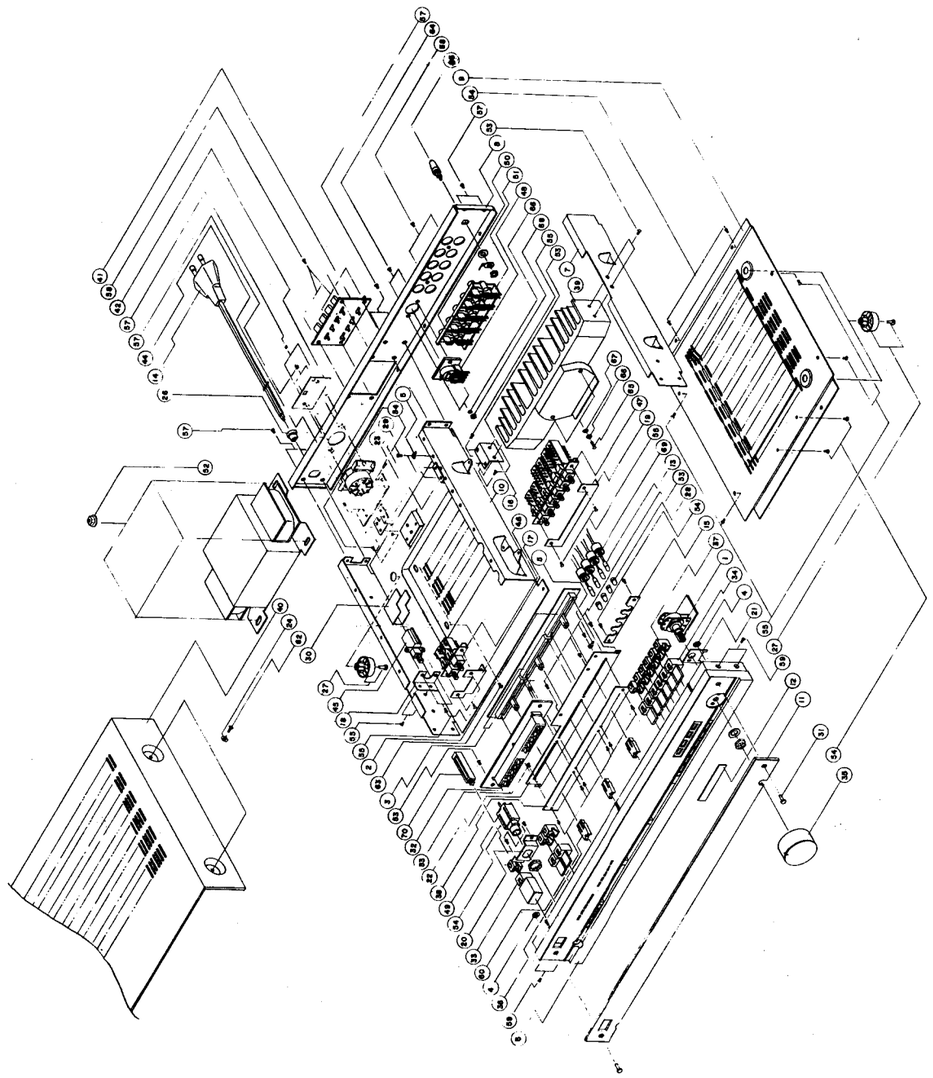
NO.	PARTS NO.	DESCRIPTION	Q'TY
16	PC-62526	BACK CHASSIS	1
17	PD-71008A	CORD STOPPER(POWER)	1
18	PE-67051-03	AC POWER CORD	1
19	PE-69124	FUSE CLIP(20㎜)	10
20	PE-68874	FUSE B'd B.K.T	1
21	PE-68444	PUSH SW B.K.T	1
22	PD-90376	VOLTAGE SELECTOR SW	1
23	PE-77124	VOLTAGE COVER PLATE	1
24	PE-76006	SPEAKER TERMINAL	1
25	PE-68873	HEAT SINK B.K.T	1
26	AE-95140	R.C.A JACK(6P)	1
27	AE-95138	R.C.A JACK(4P)	1
28	PC-74387-01	TOP CABINET	1
29	PE-70052	SYSTEM G.N.D	1
30	PE-63183-01	FILTER(FUNCTION)	1



PACKING



EXPLODED VIEW OF CABINET AND CHASSIS

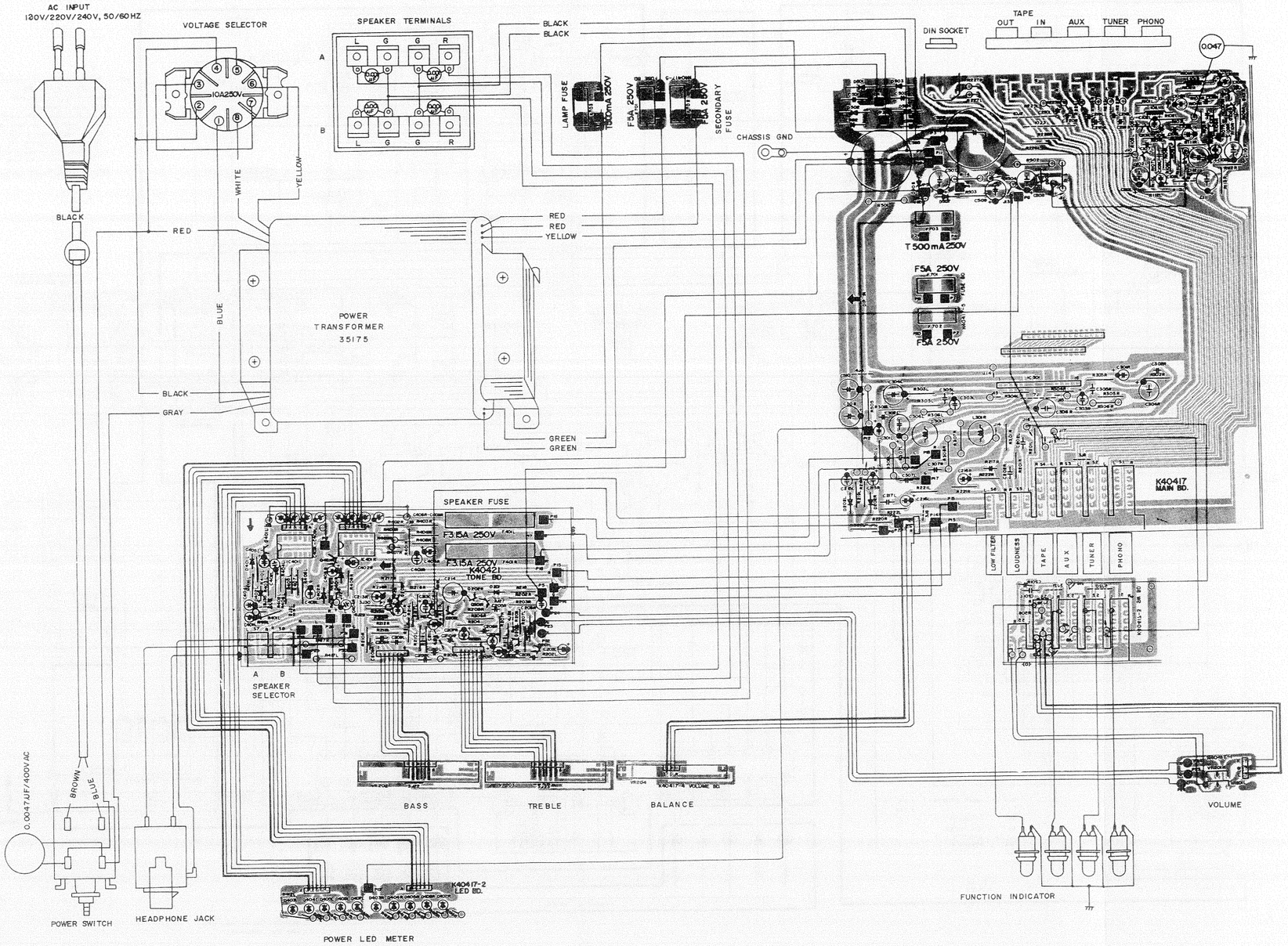


PARTS LIST ACCORDING TO EXPLODED VIEW

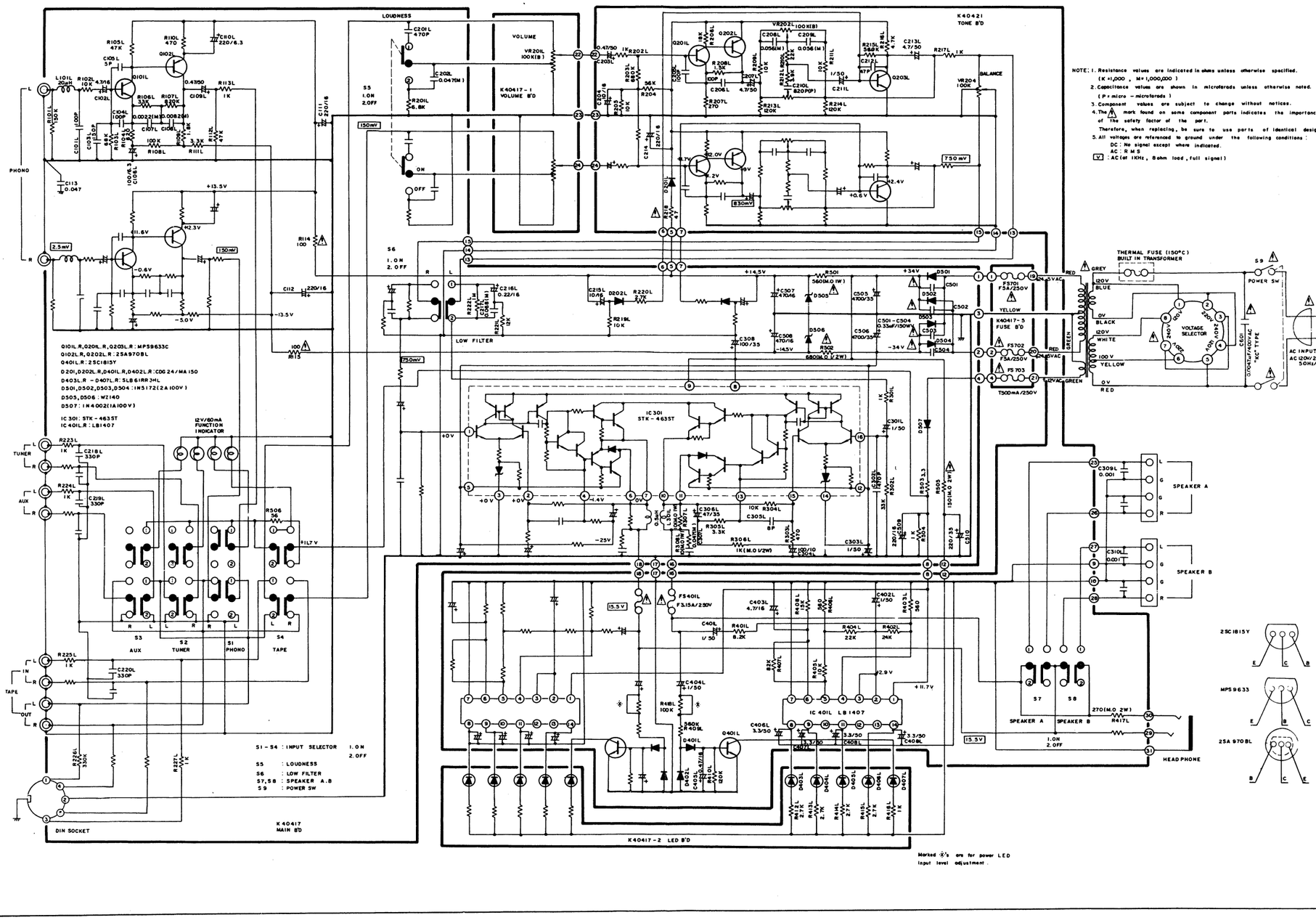
NO.	PARTS NO.	DESCRIPTION	Q'TY
1	PE-15115	POTENTIOMETER(VOLUME)	1
2	PE-15137	SLIDE VOLUME(BALANCE)	1
3	PE-15143	SLIDE VOLUME(TREBLE)	2
4	PE-25331	ϕ3 CS PUSH RING	2
5	PE-60169	LUG SOLDER	2
6	PB-61141	FRONT PANEL	1
7	PD-62525	SIDE FRAME	1
8	PC-62526	BACK CHASSIS	1
9	PC-62527	BOTTOM COVER	1
10	PC-62528	MAIN CHASSIS	1
11	PC-63181	ACRYL VIEW	1
12	PE-63183	FUNCTION FILTER	1
13	PE-64069-02	LAMP(12V 40mA)	4
14	PE-67051-03	AC POWER CORD	1
15	PE-68832	LAMP HOLDER B.K.T	1
16	PE-68833	HEAT SINK B.K.T	1
17	PE-68834	PUSH SW B.K.T	1
18	PE-68835	POWER SW B.K.T	1
19	PE-68836	PUSH SW B.K.T	1
20	PE-68837	PHONE JACK B.K.T	1
21	PE-68838	G.N.D PLATE	1
22	PE-68839	SLIDE VOLUME B.K.T	1
23	PE-68874	FUSE B'd B.K.T	1
24	PE-70046	VINYL WASHER	4
25	PE-70052	SYSTEM G.N.D	1
26	PD-71008A	CORD STOPPER	1
27	AE-71053	RUBBER FOOT ASS'Y	4
28	PE-71087-02	COLOR CAP	4
29	PE-68444	PUSH SW B.K.T	1
30	PE-71289	POWER SW COVER	1
31	PE-71331	ACRYL INSERT PIN	2
32	PD-71334	L.E.D HOLDER	1
33	PE-72362	POWER KNOB	1
34	PE-72363	PUSH KNOB	8
35	PE-72368	VOLUME KNOB	1

NO.	PARTS NO.	DESCRIPTION	Q'TY
36	PE-72369	SLIDE KNOB	3
37	PE-72373	KNOB BEZEL	9
38	PE-72375	FELT(SLIDE)	1
39	PD-73093	POWER HEAT SINK	1
40	PC-74387-01	STEEL CABINET	1
41	PE-76006	SPEAKER TERMINAL	1
42	PE-77124	VOLTAGE COVER PLATE	1
43			
44	PD-90376	VOLTAGE SELECTOR SW	1
45	PD-90303	POWER SW	1
46	PE-90355	PUSH SW (2GANG)	1
47	PD-90356	PUSH SW(6GANG)	1
48	PE-95043	DIN CONNECTOR	1
49	PD-95099	PHONE JACK	1
50	AE-95138	R.C.A JACK(4P)	1
51	AE-95140	R.C.A JACK(6P)	1
52		FLANGE NUT M4	4
53		SCREW BTC 3×8	10
54		SCREW BTC 3×6	10
55		SCREW #BTC 3×6	18
56		SCREW WPTC 3×6	7
57		SCREW #3 PTC 3×6(B)	13
58		SCREW PTC 3×8(B)	6
59		SCREW #3 FTC 3×6	4
60		SCREW PM 2×3	6
61		SCREW PTC 3×6(B)	2
62		SCREW #3 WPTC 3×8(B)	4
63		SCREW WPM 4×10	4
64		SCREW PM 3×10	2
65		SCREW PM 3×22	2
66		WASHER SW ϕ3	4
67		WASHER PW ϕ3	2
68		NUT M3	2
69	PE-71210	LAMP BUSHING	4
70	PE-72339-03	PUSH KNOB SHAFT	1

POINT TO POINT WIRING DIAGRAM



SCHEMATIC DIAGRAM



NOTE: 1. Resistance values are indicated in ohms unless otherwise specified.
(K=1,000 , M=1,000,000)
2. Capacitance values are shown in microfarads unless otherwise noted.
(P=micro - microfarads)
3. Component values are subject to change without notices.
4. The ⚠ mark found on some component parts indicates the importance of the safety factor of the part.
Therefore, when replacing, be sure to use parts of identical designation.
5. All voltages are referenced to ground under the following conditions :
DC : No signal except where indicated.
AC : R.M.S
[V] : AC(at 1KHz, 8ohm load, full signal)

BLOCK DIAGRAM